## WHAT IS CLAIMED IS:

1.      An apparatus for calculating a color temperature, comprising:

a color temperature selecting portion for selecting a left color temperature and a right color temperature that are most adjacent to a one-dimensional chroma inputted from a mapping table, the table mapping a chroma to a color temperature;

a distance calculating portion for calculating distances between the selected left color temperature and the inputted one-dimensional chroma, and between the selected right color temperature and the inputted one-dimensional chroma, respectively; and

a color temperature calculating portion for calculating a color temperature corresponding to the one-dimensional chroma inputted in accordance with a ratio of the calculated distances.

2.      The apparatus for calculating the color temperature of claim 1, wherein the one-dimensional chroma is one coordinate of CIE XYZ coordinates.

3.      An apparatus for calculating a color temperature, comprising:

a chroma selecting portion for selecting a left and a right chroma that are most adjacent to a one-dimensional chroma inputted from a mapping table, the table mapping a chroma to a color temperature;

a distance calculating portion for calculating distances between the selected left chroma and the inputted one-dimensional chroma, and between the

selected right chroma and the inputted one-dimensional chroma, respectively; and

a color temperature calculating portion for calculating a color temperature corresponding to the one-dimensional chroma inputted in accordance with a ratio

10    of the calculated distances.

4.    A color display system, comprising:

a table mapping a chroma to a color temperature;

a chroma detecting portion for detecting the chroma from inputted image data and outputting the detected chroma at a one-dimensional level;

5    a color temperature selecting portion for selecting from the table left and right color temperature/chroma that are most adjacent to the one-dimensional chroma;

a distance calculating portion for calculating distances between the selected left color temperature/chroma and the one-dimensional chroma, and

10    between the selected right color temperature/chroma and the one-dimensional chroma;

a color temperature calculating portion for calculating a color temperature corresponding to the one-dimensional chroma in accordance with a ratio of the calculated distances;

15    a color temperature converting portion for converting the chroma of the inputted image data into the calculated color temperature; and

a display portion for displaying an image having the converted color temperature.

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5.    A method for calculating a color temperature, comprising the steps of:

a)  inputting one-dimensional chroma;

b)  selecting left and right color temperatures that are most adjacent to the one-dimensional chroma inputted from a chroma-color temperature mapping table;

c)  calculating distances between the selected left color temperature and the inputted one-dimensional chroma, and between the selected right color temperature and the inputted one-dimensional chroma; and

d)  calculating a color temperature corresponding to the one-dimensional chroma inputted in accordance with a ratio of the calculated distances.

6.    The method for calculating the color temperature of claim 5, wherein the step d) comprises the sub-steps of:

d1) calculating a rate-of-change of the color temperature from the left and right color temperatures selected in accordance with the ratio of the calculated distances to the inputted one-dimensional chroma; and

d2) calculating a final output color temperature corresponding to the inputted one-dimensional chroma by adding/subtracting the calculated rate-of-change of the temperature to/from the selected left and right color temperature.